



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/917,633	07/31/2001	Shunpei Yamazaki	740756-2345	3382
22204	7590	04/19/2006	EXAMINER	
NIXON PEABODY, LLP 401 9TH STREET, NW SUITE 900 WASHINGTON, DC 20004-2128			TRAN, THIEN F	
			ART UNIT	PAPER NUMBER
			2811	

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

HA

Office Action Summary

Application No.

09/917,633

Applicant(s)

YAMAZAKI ET AL.

Examiner

Thien F. Tran

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the metal advanced (induced) lateral crystallization region as recited in claims 1-5, 9-13; a plurality of metal advanced (induced) crystallization regions in claims 1, 10, 12; and a channel region must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the metal advanced (induced) lateral crystallization region and a plurality of metal advanced (induced) crystallization regions formed on sides of the metal advanced lateral crystallization region as recited in claim 1, claim 10 and claim 12 must be shown or the feature(s) canceled from the claim(s). The boundaries and locations of these regions are not defined and shown to make a distinction between these different regions, the metal advanced (induced) lateral crystallization region from a plurality of metal advanced (induced) crystallization regions. No new matter should be entered.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the metal advanced lateral crystallization region including no dopant portions formed on sides of the channel region as recited in claim 4 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, a source region having a first source portion adjacent to the channel region and a second source portion adjacent to the first source portion; and a drain region having a first drain portion adjacent to the channel region and a second drain portion adjacent to the first drain portion as recited in claim 5 and claim 13 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: a metal advanced (induced) lateral crystallization region in claims 1-5 and 9-13; a plurality of metal advanced (induced) crystallization regions in claims 1, 10 and 12; the metal advanced lateral crystallization region including no dopant portions formed on sides of the channel region as recited in claim 4; and a source region having a first source portion adjacent to the channel region and a second source portion adjacent to the first source portion, and a drain region having a first drain portion adjacent to the channel region and a second drain portion adjacent to the first drain portion as recited in claim 5 and claim 13. The meets and bound of these regions as claimed are undetermined and undefined. There is no support or special definition of the claimed features or elements mentioned above in the description. The claim chart supplied by applicant does not clearly identify the claimed features or elements. The process steps in the description and pointed out in the claim chart do not provide clear support for the exact locations and boundaries of the features or elements as claimed. For example, the exact locations of the metal advanced lateral crystallization region and the plurality of metal advanced crystallization regions so that skilled artisans would have recognized a metal advanced lateral crystallization region from the plurality of metal advanced crystallization regions. Also, the exact location and boundary of the channel region needs to be identified to avoid confusion. Furthermore, the exact location of the at least one portion (one boundary) between the metal advanced lateral crystallization region and one of the metal advanced crystallization regions located outside the

Art Unit: 2811

channel region is required to be identified and pointed out in the description and shown in the drawings to prevent confusion. The exact locations of other remaining elements as mentioned above are also required to be shown in the drawings and pointed out in the description for clarity.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 3-9 and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

With respect to claim 3, as illustrated in Figure 1B, the plurality of metal advanced crystallization regions (impurity regions 16A & 16B) include the source and drain regions, not the metal advanced lateral crystallization region (channel area between 16A & 16B). As such, there is no support for the metal advanced lateral crystallization region including a channel region as claimed in claim 1 and including source and drain regions as claimed in claim 3. It is suggested amending "the metal advanced lateral crystallization region" to read "the plurality of metal advanced crystallization regions".

Art Unit: 2811

With respect to claim 4, the impurity region 16A is considered as a source region, the impurity region 16B is considered as a drain region and a portion of the semiconductor film 12 defined and located between the source region 16A and the drain region 16B is a conducting channel region. The regions 16A and 16B are indeed doped (page 7, second paragraph). As such, no dopant portions exist between the channel region and the source region 16A and the drain region 16B. No support is found for the recitation of no dopant portions as claimed.

With respect to claims 5-9 and 13, the claims require the source region and drain region to have two portions respectively. As illustrated in Figure 1B, the source (impurity region 16A) has only one portion as does the drain (impurity region 16B). As such, there is no support for these claim limitations in the application as originally filed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5, 8 and 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Hideaki Oka (JP 02-140915).

Oka discloses a transistor (Figures 1a-d) comprising a substrate 101; source/drain regions 107 characterized as a plurality of metal advanced (induced) crystallization regions and a portion of a crystal grown silicon layer 105 between regions 107 characterized as a metal advanced (induced) lateral crystallization region with a

Art Unit: 2811

semiconductor material (see Figures 1c, 1d), the portion of the layer 105 defined between regions 107 is also a conducting channel region, wherein at least one boundary or one portion between the metal advanced lateral crystallization region and one the metal advanced crystallization regions 107 is located outside the channel region (see attached drawings 1c-1d with red marks and red notations). The plurality of metal advanced crystallization regions 107 is formed on sides of the metal advanced lateral crystallization region (channel region).

With respect to claim 2, the metal advanced lateral crystallization region 105 includes impurity doped regions 107 formed on sides of the channel region.

With respect to claim 3, the plurality of metal advanced crystallization regions include source and drain regions 107.

With respect to claims 5 and 11, no clear support or antecedent basis in the description is found for the terms and phrases "a metal advanced lateral crystallization region" used in the claim so that the meaning of the terms in the claim may be ascertainable by reference to the description. In fact, the meets and bound of this region is undetermined and undefined. There is no support or special definition of "a metal advanced lateral crystallization region" in the description. Therefore, the crystal grown silicon layer 105 in Oka reference could be considered as a metal advanced lateral crystallization region since Oka also uses the same metal advance (induced) crystallization method to crystallize an amorphous silicon layer 102 into a crystal grown silicon layer 105. The crystal grown silicon layer 105 (Figure 1c) is then used to form the channel region between the source region 107 and the drain region 107 (Figure 1d).

Art Unit: 2811

The examiner considers the portion of the source region 107 adjacent to the channel region as a first source portion and the portion of the source region farther away from the channel region as a second source portion. For the drain region 107, the portion of the drain region 107 adjacent to the channel region is considered as a first drain portion and the portion of the drain region farther away from the channel region is considered as a second drain portion. The source region 107 clearly has a first source portion adjacent to the channel region, and the drain region 107 has a first drain portion adjacent to the channel region; wherein the channel region and at least one of the first source portion and the first drain portion are parts of the metal advanced lateral crystallization region 105.

With respect to claim 8, the source and drain regions are impurity doped.

Response to Arguments

Applicant's arguments filed 01/23/2006 have been fully considered but they are not persuasive. In response to applicant's arguments, the claimed features are not sufficiently shown and clearly defined in the drawings. A person having ordinary skill in the art would not understand the claimed features from reading the specification and studying the drawings as stated by applicant. By claiming features using the language not supported and defined in the specification, applicant creates confusion and makes it difficult for one having ordinary skill in the art to understand the claimed invention.

In response to applicant's argument that support for all the claim language was provided with a claim chart included in the Evidence Appendix, The examiner respectfully disagrees because the claim chart is not the specification. It is noted that

Art Unit: 2811

the specification stands objected because there is no clear support for the claim language. Furthermore, the claim chart just lists the process steps in the specification that fail to provide clear support for the exact locations and boundaries of the claimed features (elements). The examiner has trouble understanding the relationship between the process steps with the claim language used for the claimed features in the claim chart. The specific process steps listed in the claim chart do not provide support for the claim language. Applicant is urged to use his own language supported in the specification to claim his invention instead of using someone else language (copying the claimed language of Joo et al.) to create misunderstanding and confusion.

In response to applicant's argument that the examiner did not make any effort to rebut any of the recitations provided in the claim chart provided by applicant, the examiner clearly states in the office action that the process steps pointed out by applicant in the claim chart do not describe and provide clear support for the exact locations and boundaries of the claimed features such as the exact locations of the metal advanced lateral crystallization region and the plurality of metal advanced crystallization regions so that skill artisans would have recognized a metal advanced lateral crystallization region from the plurality of metal advanced crystallization regions. Applicant cannot pick and choose specific process steps in the specification to give it a name when that name is not clearly defined in the specification or well known in the art. For example, the process steps referred to in the claim chart (page 2, lines 8-11, lines 15-17; page 3, lines 23-25; page 14, line 30; page 15, line 1; page 16, line 3, page 18, lines 7-8; and page 24, lines 2-3) could also mean a plurality of metal advanced

crystallization regions instead of a metal advanced lateral crystallization region. When applicant decides not to use the same language in the specification to claim his invention and using the claim language of someone else, applicant clearly creates confusion and misunderstanding. The same arguments go for other features listed in the claim chart. The examiner by reading the process steps disclosed in the specification would not find any support for the claim language used by applicant as pointed out in the 112 rejections, specification objection and drawings objection.

In response to applicant's argument that the regions 107 of Hideaki Oka only includes source and drain regions and does not include the metal advanced region. Again, the claim language "metal advanced region" in the claim is not clearly defined in the specification, and the process disclosed by Oka is the same process used by applicant to form the active region that includes the source and drain regions. Therefore, the regions 107 are the "metal advanced region". Claimed features are taught by Oka.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Art Unit: 2811

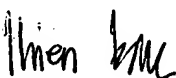
extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thien F. Tran whose telephone number is (571) 272-1665. The examiner can normally be reached on 8:30AM - 5:00PM Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (571) 272-1732. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

tt
April 16, 2006


Thien Tran
Primary Examiner